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Recovery in the Calypso file system

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↑ ABSTRACT

This article presents the deign and implementation of the recovery scheme in Calypso. Calypso is a
cluster-optimized, distributed file system for UNIX clusters. As in Sprite and AFS, Calypso servers are
stateful and scale well to a large number of clients. The recovery scheme in Calypso is nondisruptive,
meaning that open files remain open, client modified data are saved, and in-flight operations are
properly handled across server recover. The scheme uses distributed state amount the clients to
reconstruct the server state on a backup node if disks are multiported or on the rebooted server
node. It guarantees data consistency during recovery and provides congestion control. Measurements
show that the state reconstruction can be quite fast: for example, in a 32-node cluster, when an
average node contains state for about 420 files, the reconstruction time is about 3.3 seconds.
However, the time to update a file system after a failure can be a major factor in the overall recovery
time, even when using journaling techniques.

↑ REFERENCES

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